

**REMARKS**

Claims 1-19 and 21 are pending in this application. By this Amendment, claims 1, 8 and 18 are amended to correct formal matters and not for reasons related to patentability. Specifically, claim 1 is amended to more clearly define the rupture point of the projectile; claims 8 and 18 are amended to add punctuation (periods) at the end of the claims. Claim 20 is hereby cancelled and new claim 21 is added to more clearly define the invention. Reconsideration is respectfully requested.

**Claim Rejections Under 35 U.S.C. §103(a)**

In the Office Action, claims 1-3, 7-9, 12, 13, 17-19 were rejected under 35 U.S.C. §103(a) as being unpatentable over DE 100 57 673 (DE '673), as translated in U.S. 6,536,351. The rejection is respectfully traversed.

First, as to claim 1, the claim recites the feature of “heavy metal fragments filling at least half of the hollow space.” The Office Action takes the position that “the fragments filling at least one fourth or one sixth or half of the hollow space is a matter of design choice, since applicant’s specification is silent that this particular feature solves any problems or is for any particular purpose...” (Office action, page 3). Applicants respectfully submit that the Office Action fails to establish a *prima facie* case of obviousness.

The test for obviousness is what the combined teachings of the prior art would have suggested to one of ordinary skill in the art. See, e.g., In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In establishing a *prima facie* case of obviousness, it is incumbent upon the Examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Int. 1985). Additionally, all the claim limitations must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). “All words in a claim must be considered in judging the patentability of that claim against the prior art.” In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970). See MPEP §2143.03.

In view of the above, Applicants respectfully submit that the DE '673 reference fails to teach heavy metal fragments filling at least half of the hollow space and that one of ordinary skill in the art would not have been led to modify the DE '673 projectile to include this feature. DE '673 (as translated in U.S. 6,536,351) only teaches such heavy metal fragments in the form of a fragment plate 4 positioned near a front of the warhead 1 with the majority of the warhead interior containing explosive charge 5, the second partial charges 8-10 thereof being for accelerating fragments laterally or for creating a lateral pressure wave (see column 1 line 50 – column 2 line 15 in the '351 translation). The DE '673 warhead, thus, does not allow for at least half of the hollow space to be filled with heavy metal fragments.

Moreover, in response to the Examiner's position that this feature is a matter of design choice because the specification is silent that this particular feature solves any problems or is for any particular purpose, Applicants respectfully point to paragraphs [0004] and [0007] of the specification. Specifically, paragraph [0004] states that a drawback of known projectiles is the low rate of effectiveness due to the percentage by mass that causes the fragmentation effect being low relative to the projectile weight. Similarly, paragraph [0007] recites that “[t]he invention is essentially based on the concept of *omitting the use of explosives* in the fragment projectile, and *filling the space required for the explosive with fragments*” (emphasis added). The foregoing portions of the specification clearly recite that this feature solves a problem. The Office Action, thus, fails to provide a reason why one of ordinary skill in the art would have been led to modify the DE'673 reference to arrive at the claimed invention. For the above-mentioned reasons, Applicants respectfully submit that DE '673 fails to render the recited fragment projectile obvious. Accordingly, Applicants respectfully request that the rejection be withdrawn.

Second, the Office Action states that DE '673 teaches an ejector charge 5 as recited in claim 1. Again, Applicants respectfully disagree. Claim 1 recites that the ejector charge is disposed at the rear of the hollow space to eject the fragments from the projectile casing, when activated, during the flight of the projectile, the ejector charge causing the projectile casing to rupture at most at a projectile tip of the projectile casing through which the fragments are ejected (emphasis added). In contrast, DE '673 discloses an explosive charge 5 that ruptures the casing at many points, including laterally. By rupturing the projectile case at most at a projectile tip of the projectile

casing, a directed (or aimed) ejection of a large number of fragments from inside the projectile is produced. This produces a more effective and larger concentration of fragments toward the intended target.

The Office Action states that the examiner agrees that the DE '673 reference discloses an explosive charge 5 that ruptures the casing at many points, but goes on to state that "applicant did not define the relative intensity or amount of the term 'at most'." Applicants respectfully submit that the term "at most" is clear in limiting rupture of the projectile to the tip as recited in claim 1.

In light of the above, it is respectfully submitted that DE '673 does not render obvious claim 1 and, therefore, rejection under 35 U.S.C. §103(a) is inappropriate. As a result, it is respectfully requested that the rejection be withdrawn and claim 1 be indicated as being allowable. Claims 2-20 depend directly and indirectly therefrom and are allowable for at least the same reasons.

In the Office Action, claims 4-6 and 14-16 were rejected under 35 U.S.C. §103(a) over DE '673 in view of U.S. Patent No. 4,970,960 to Feldmann. The rejection is respectfully traversed.

Feldmann does not remedy the deficiencies of DE '673 discussed above. For at least this reason, it is respectfully submitted that the combination of DE '673 and Feldmann does not suggest the features of claims 4-6 and 14-16. Therefore, the rejection under 35 U.S.C. §103(a) is inappropriate. As a result, it is respectfully requested that the rejection be withdrawn.

Claims 10 and 20 were rejected under 35 U.S.C. §103(a) over DE '673 in view of DE 15 78 135 (DE '135). The rejection of claim 10 is respectfully traversed. Claim 20 has been cancelled thereby rendering the rejection moot.

DE '135 does not remedy the deficiencies of DE '673 discussed above. For at least this reason, it is respectfully submitted that the combination of DE '673 and DE '135 does not suggest the features of claim 10. Therefore, the rejection under 35 U.S.C. §103(a) is inappropriate. As a result, it is respectfully requested that the rejection be withdrawn.

Claim 11 was rejected under 35 U.S.C. §103(a) over DE '673 in view of U.S. Patent No. 6,041,713 to Altenau. The rejection of claim 11 is respectfully traversed. Altenau does not remedy the deficiencies of DE '673 discussed above. For at least this reason, it is respectfully submitted that the combination of DE '673 and Altenau does not suggest the features of claim 11 which includes all of the features of claim 1. Therefore, the rejection under 35 U.S.C. §103(a) is inappropriate. As a result, it is respectfully requested that the rejection be withdrawn.

Applicant also respectfully points out that claims 12-19 depend from claim 11. Claims 12-19 were, thus, improperly rejected in the Office Action since these claims were not rejected under 35 U.S.C. §103(a) over DE '673 in view of Altenau as applied to claim 11.

### New Claims

By this amendment, new claim 21 is added. Claim 21 is respectfully submitted as being allowable for at least the same reasons as recited above with regard to claim 1.

### Conclusion

In view of the forgoing, applicants respectfully submit that the application is in condition for allowance. A Notice of Allowance to that effect is respectfully solicited. Should the Examiner believe that an interview will help speed the prosecution of the application, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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